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turn the leaves yellow. Then cut what you want. When you want the leaves green, cut those on the outside fresh and use them just as they are. The inner leaves of the yucca plant, the ones near the stem, are white, and they can be used to give still another color. 285 824

The ruddy tendrils found at the roots of the narrow-leafed yucca are worked into baskets for contrast and design. The outer covering of the seed pod of the unicorn plant provides a black substance. The sewing materials for the ceremonial tray basket used in the girl's puberty rite come from these pods. [386]

Tray baskets act as containers for dry foods and "for any little thing, like nuts." They are used in parching seeds, in winnowing, and in a variety of other ways. 285

The large burden basket is twined, and the withes employed are from the sumac or mulberry. The designs are seldom more than bands of color woven with strands that have been soaked in dyes similar to those used to color buckskin. Often the bottom is covered with buckskin or rawhide from which fringe and pendants hang. [824] [386] [531]

The water jar is in reality a pitch-covered basket. It also is made by the twined technique and is usually of sumac, or less frequently of mulberry. A hide or wooden handle is affixed to each side. Jars for tiswin are usually larger than those for carrying or holding water: 314 285

In the making of the water jar, the woman does it all from the beginning. She makes a woven basket. Then she gathers pitch. The only pitch used is that from the piñon tree. If it is in a hard lump on the trunk, she breaks it off; if it is sticky, she uses a piece of wood. She places it in a basket and brings it home, first laying some kind of grass or leaves in the basket so that the pitch won't stick to it. She puts the pitch in a pot and heats it until it gets soft.

When the pitch is soft enough, she pours or transfers it to the inside of the water jar she is making. She has a heated stone in there too and moves the basket around, so that the pitch spreads evenly. While she is putting on the pitch, she doesn't allow any other person near the fire. She must be there by herself. But, when she is weaving the basket, others can be around.

Sometimes she puts pitch on the outside, sometimes not. To put pitch on the outside, she has a stick with a piece of buckskin on. She dips this into the hot pitch and rubs it on. Then she lets it cool for a while; but, when it is still a little warm, she dips her hand into water and smoothes the jar to make it look nice. Sometimes before putting the pitch on the outside, she rubs the surface with red ocher. It looks pretty then, because the red shows through the pitch. A woman [386]

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285 314 [824] can carry a water jar the same day it is finished. When the pitch has cracked and the jar leaks, she repairs it by putting hot stones in it. Then it comes together again. We use oak leaves or good clean grass to cover the opening. The oak leaves give a good taste to the water if they are used as a cover, we think.

323 *Pottery and household utensils.*—I have not been able to find a single existing example of the ceramics of these people. But women did mold pots at one time. The methods employed by his relative are reported by one informant:

My aunt used to make clay pots. She got red clay, a sticky kind, and ground it between two rocks, ground it fine. She had water at her side and kept putting her hand in to make the clay sticky. She worked the clay. She said she had to grind the clay fine or it would break.

First she made the bottom. She made a ball and pressed it down flat. Then she'd take a pinch of it and roll it out to a long piece and put her hand in the water to make it smooth. She built it up by putting these pieces on, bringing them around the way the sun goes. She rested the pot she was making right by her side on the ground. She smoothed it as she built it, sometimes with her hand dipped in water and sometimes with a flat paddle that she dipped in water. Sometimes she rested the pot she was making right in her lap, sometimes on the ground by her side. Sometimes she made big ones, sometimes little ones.

Then she broke open the little round cactus that grows in clusters [nipple cactus] and rubbed a piece of it on the outside and the inside of the pot. This is sticky. Then she put the pot out in the sun to dry. If the sun was out, it would dry enough to handle and be put in the fire in two or three hours.

Then she built a fire. She used any wood and let it burn down to ashes. Then she put the pot in and kept turning it. She would strike it to see if it was done. She turned it so it got done evenly. The pots were dark brown when they were finished, but some clays made them lighter.

Sometimes she made several at once, of different sizes. She never painted or designed them. Not many women made them. In the big group in which I lived my aunt and two others made them. These women who made pots allowed men to watch while they worked.[1] They never ground up the old pots and put the old material with the new. I saw these women make olla-shaped pots, low bowl-shaped ones, and some that were like a pitcher. My aunt never painted or designed any of them.

[462] Another account adds some interesting details:

Women were the pottery-makers. They went to a place where the animals would come to lick the salt and took clay from there. They rolled this clay with their hands into a long rope and wound this up, coiling it around and around in

[1] This was denied by another informant, who said that men could not be present when women were working on the parfleche or the pot. [114]

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After the craftsman has cut a branch, split it, and shaped and smoothed the wood, he lets it season. When it is dried to his liking, he "greases the wood and pulls it in every way until it is slick and shiny." The wood is bent over the knee or over a tree and tied. Then it is put in hot ashes and watched so that it will not burn. After it cools it keeps its shape. The bow wood is kept tied and allowed to dry for over ten days after this treatment with heat. When the double-curved bow is made, the heated bow wood is bent between two young trees growing close together.

The outer surface is usually painted a solid color; on the inner surface the maker puts a design by which his handiwork is known —a star, a cross, serrated lines, parallel lines, or a naturalistic figure. This may refer to his supernatural power or may be simply a decoration or an identification mark. The dyes used are vegetable or mineral substances made permanent by mixture with juice squeezed from heated yucca leaves. Though the bow is never backed longitudinally with lengths of sinew, it is often wrapped with sinew. Usually, however, this is not applied until the bow has been weakened by use. Horse hair is used, but less frequently, as the reinforcing agent.

When the bow is to be sinew wrapped, animal hooves and horns are boiled for two days, and the glue thus obtained is rubbed on the wood at the places where the sinew will cover it. Then the moistened sinew is wound around the bow, usually at the middle and at places on each side equidistant from the center. Glue is rubbed on the outer surface of the wrapping too, and the bow is left to dry. Occasionally, piñon pitch is substituted for glue. "The pitch is put on the sinew warm, and the bow is worked and bent back and forth to spread the pitch and work it in."

Sinew from the loin or the leg of the deer is saved for the bow string. The man soaks the sinew in water, separates it into strands, and rolls three of them together on his leg to form a string. The warrior or raider will have an extra string with him in case the one on his bow should snap. One informant claimed that the tough fiber from the mescal leaf, rolled on the thigh and

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bound on the shaft with wet sinew. Sometimes a little piñon pitch is applied to the shaft at the point where the sinew will cross. 411 [314]

One feather is put on at a time, and the tops of the feathers are affixed to the shaft first. The first feather is held in place, and the sinew is wound around its top and the shaft once. The second feather is put in position and secured at the top with one strand of sinew also. Now the third feather is put in place, and the sinew is wound around it and the shaft many times. Then the arrow is put aside that the sinew may dry and tighten. When the craftsman is ready to resume work, he fastens the bottoms of the feathers to the shaft with sinew.

Flint arrowheads are used when they can be found. There is very little chipping of arrowheads. A single informant speaks of pounding slate and using the most likely pieces for arrowheads. Another, an Eastern Chiricahua, tells of seeing "flints used as arrowheads and one rock used to shape and chip another" during his youth. But the majority of commentators agree that their tribesman made no consistent attempt to manufacture flint arrowheads: 411 324

> The pieces of flint are found already shaped. The legend goes that the animals and the birds made them and used them in the fight against each other for daylight. [773] [825]

> The Chiricahua did not make stone arrowheads and beads. They found them. There were many of them in their country. They can be found in anthills there, the hills of the red ants. White shell beads are found there too.

> The arrowheads we have are found. They are said to have been made by a people who lived here before the Apache. . . . . These people are called the "ancient people" [Pueblo]. I don't think these people were here even in the memory of the old men. It must have been before that. [772]

Fine long blades and points found throughout the tribal range are also considered by some to be arrows of the Thunder People. [776]

When flints are to be affixed, the shaft is split, the arrowhead is inserted, and the shaft is tightly wrapped with moistened sinew. More commonly, however, no flint is used; the wooden tip of the arrow is simply sharpened and fire hardened. Often the arrow is fluted. With a sharp stone, the arrow-maker scratches 411

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With a sharp stone, the arrow-maker scratches three channels along the shaft in line with the feathers or makes a spiral groove upon it. Zigzag incisings, one on either side of the arrow, occasionally are etched instead "because the arrows of Child of the Water, when he fought the giant, were like that."

The respective merits of the two basic arrow types were discussed as follows:

Some arrows are made short, some are made a little heavy, and some are made light. My father says that in order to shoot a long way you should take a short arrow. For short distances he uses the long arrow with a shaft of carrizo. I think an arrow made with a wood shaft is better than a reed [carrizo] arrow. Of course, those reed arrows are good for shooting birds and for other light shooting.

If the shaft is of reed, the arrow has a hard wood point. In the old days they were tipped with any wood hard enough to go into the animal, but I never knew men to put on a stone arrowpoint. Instead they seasoned their arrows until they were very hard. Many times I have seen my father sitting over a charcoal fire heating the end of an arrow until it was just as hard as steel. He'd look at it and sharpen it. I have never seen them chip stones for arrows.

When the shaft is to be of reed:

The man goes to the streams and gets some reeds before they grow too tall. He cuts them green and fresh. They become hard as they dry. He straightens them between his teeth and lets them dry for about two weeks. Then he puts the hard foreshaft in, fastening it with piñon pitch and binding it with wet sinew. It gets tight when dry. About two inches or a little more of the foreshaft goes into the reed, and about the same amount is left sticking out.

The carrizo arrow is usually about thirty inches long; the type with the shaft entirely of hard wood is a few inches shorter. The length and stoutness of the bow are adapted to the size and strength of the man, and the arrow must be of the proper size so that "it is not too short when the string is pulled back."

In addition to the methods of straightening arrows which have been mentioned, the use of discarded potsherds for the purpose has been described: "Take a reed arrow and get it hot. Put grease on and rub it with a piece of discarded pottery which has been heated too. This straightens it. I used to do it in Arizona."

On the child's arrow or on the arrow used for hunting birds and small game, one long feather may be wound spirally around the shaft for a distance of approximately eight inches. Often such arrows are left without any feathers at all.

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Pitch has been applied to the inner surface of the split, and the stone is held in place by sinew bindings on either side of it. Often an animal tail is attached to the end of the handle. An ax of this type, without the tail or any decoration, may serve around camp as a household tool.

The man makes for his own use a sling, a diamond-shaped piece of rawhide, pounded a little and thus softened, with four perforations through the median line of its width. A rawhide string is attached to each side, one with a loop at the end and the other without any. Because of the perforations, the sling can be folded over a stone about two and a half inches long and one inch thick. The loop is placed on the middle finger of the right hand, and the free string is held between the thumb and first finger. The sling is drawn back and whirled just once. As it comes forward the unlooped string is released, hurling the stone.

There are slings of two sizes that the Chiricahua carry. One is for things close by and is short. The other is a long one, for long-distance shooting. You can get to be very accurate with a sling. You never whirl the sling around a lot, as the stone might come out and hit someone. It just goes back once, and then you let it go. You can hurl a stone a hundred and fifty yards with it. It can be used for hunting birds or deer alike.

Finally, there is the stone knife, chipped with another stone. "They used to chip off the hardest rock they could get and use it for a knife." This knife may have a shoulder jutting from the handle end so that it can be tied to the belt or waist, or it may be carried in a rawhide sheath made by the woman.

A man makes a long rope from a piece of buckskin or rawhide by cutting it in a continuous clockwise circle from the outer rim to the center. To form an especially strong rope, he braids several strands of rawhide together. Such a cord or one braided from horse-tail hair makes a serviceable bridle. By shredding yucca leaves and braiding the tough strands, he makes a durable rope which also can be used for tying and hobbling horses or for a bit and bridle.

"Anyone could build a fire. Whoever woke up first did it. A woman can use the fire drill." Yet the fire drill is made by the man and is employed by him most frequently: